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(71) Applicant
David S Smith Limited

(Incorporated in the United Kingdom)

P O Box 14, Neath, West Glamorgan, SA11 1PT,
United Kingdom

(72) Inventor
John Charles Chislett

(74) Agent and/or Address for Service
Urquhart-Dykes & Lord
Alexandra House, Alexandra Rd, Swansea, West
Glamorgan, SA1 5ED, United Kingdom

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(58) Field of search
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(54) Grouping of containers

(57) Two or more containers (10) such as plastic yoghurt pots, are grouped into a unit, typically of four containers, by being inserted through apertures (14) in a first sheet (13) of cardboard or thin plastics. The upper, openable end (12) of each container is a close or tight fit in the aperture. The containers are normally filled and sealed with foil covers before insertion. A second sheet (17) is laid over the first sheet and over the openable ends of the containers in the unit, and then affixed to the first sheet. The peripheral edges of the sheets may be folded down along lines of weakness (19, 20, 21) so as to lie against the containers.

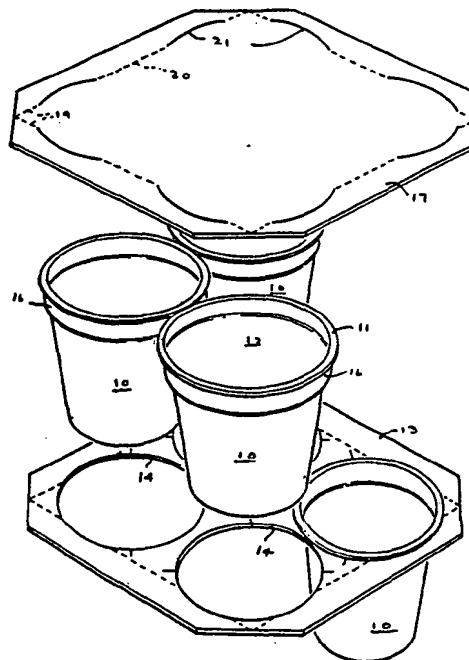


FIG. 1

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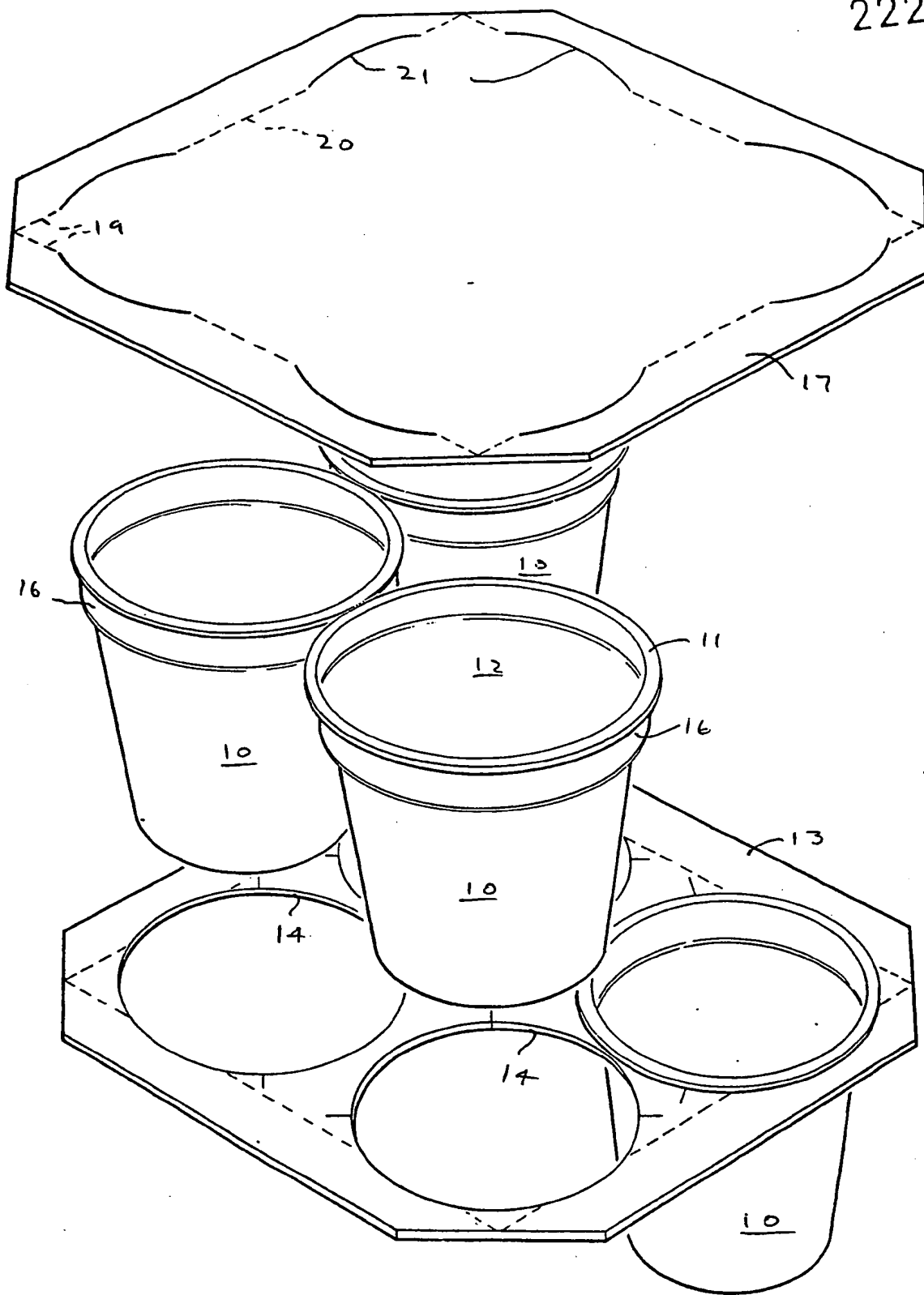
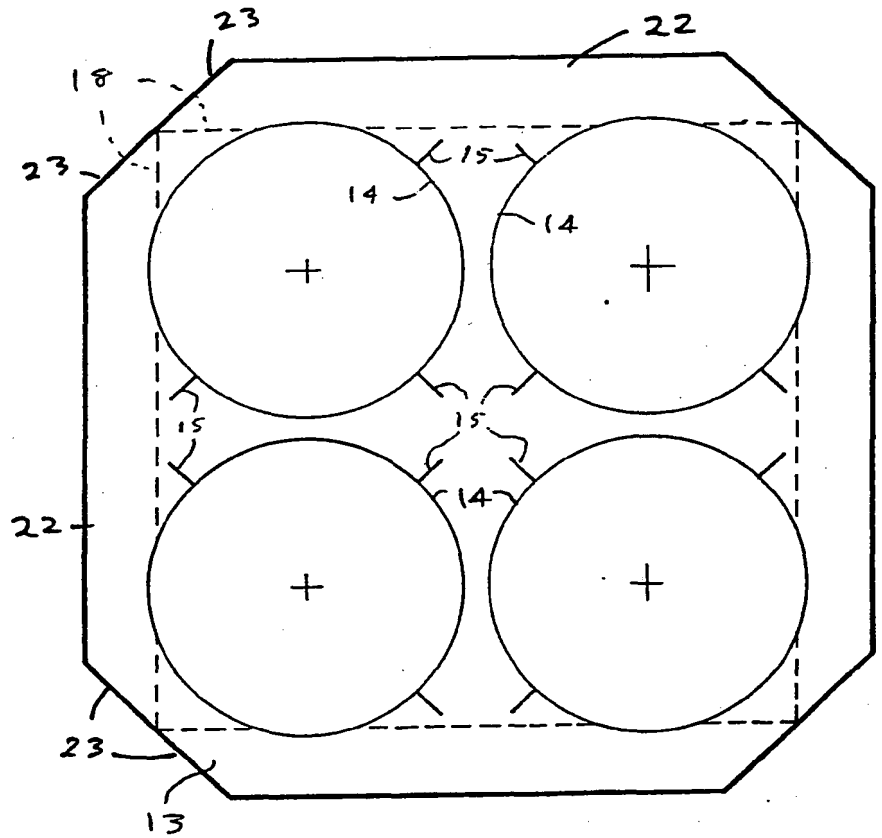
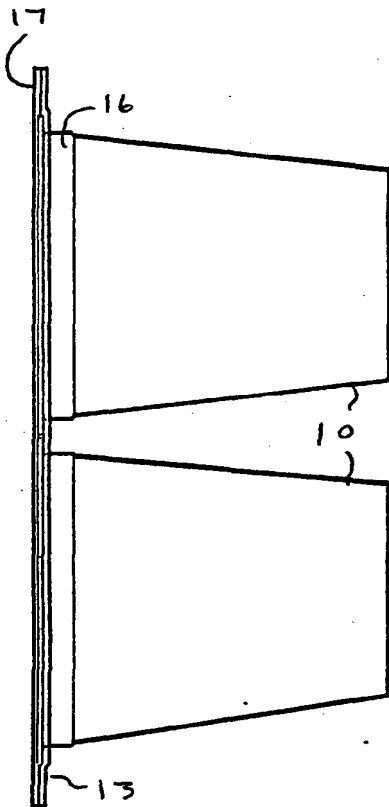
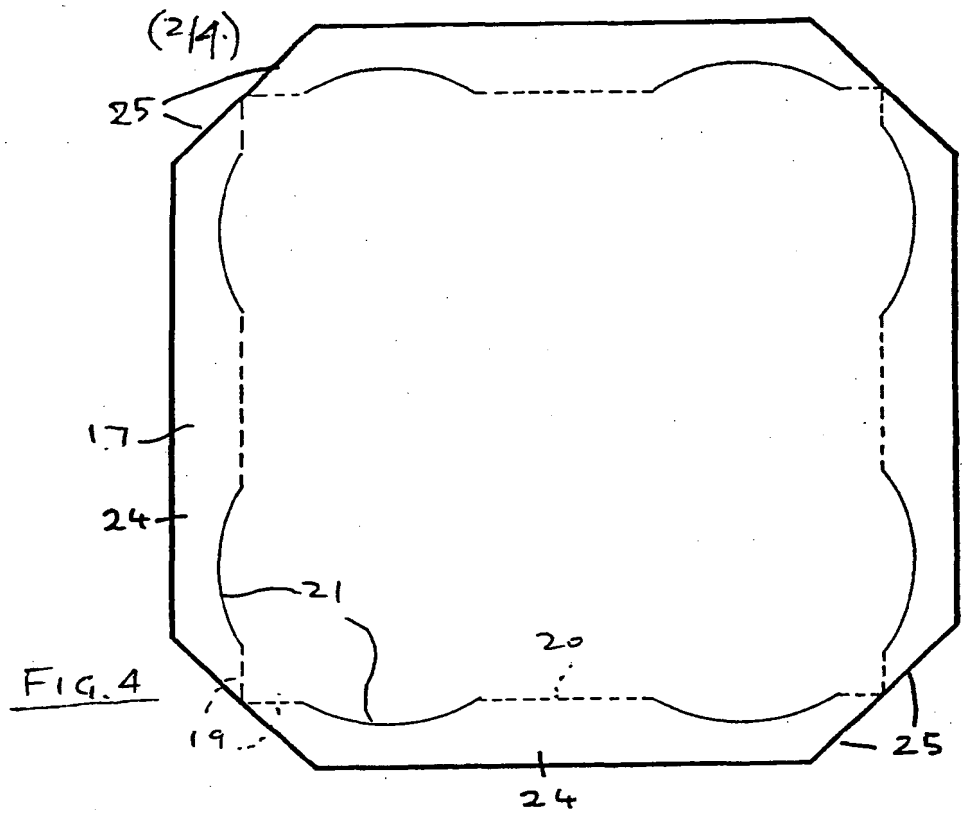


FIG. 1



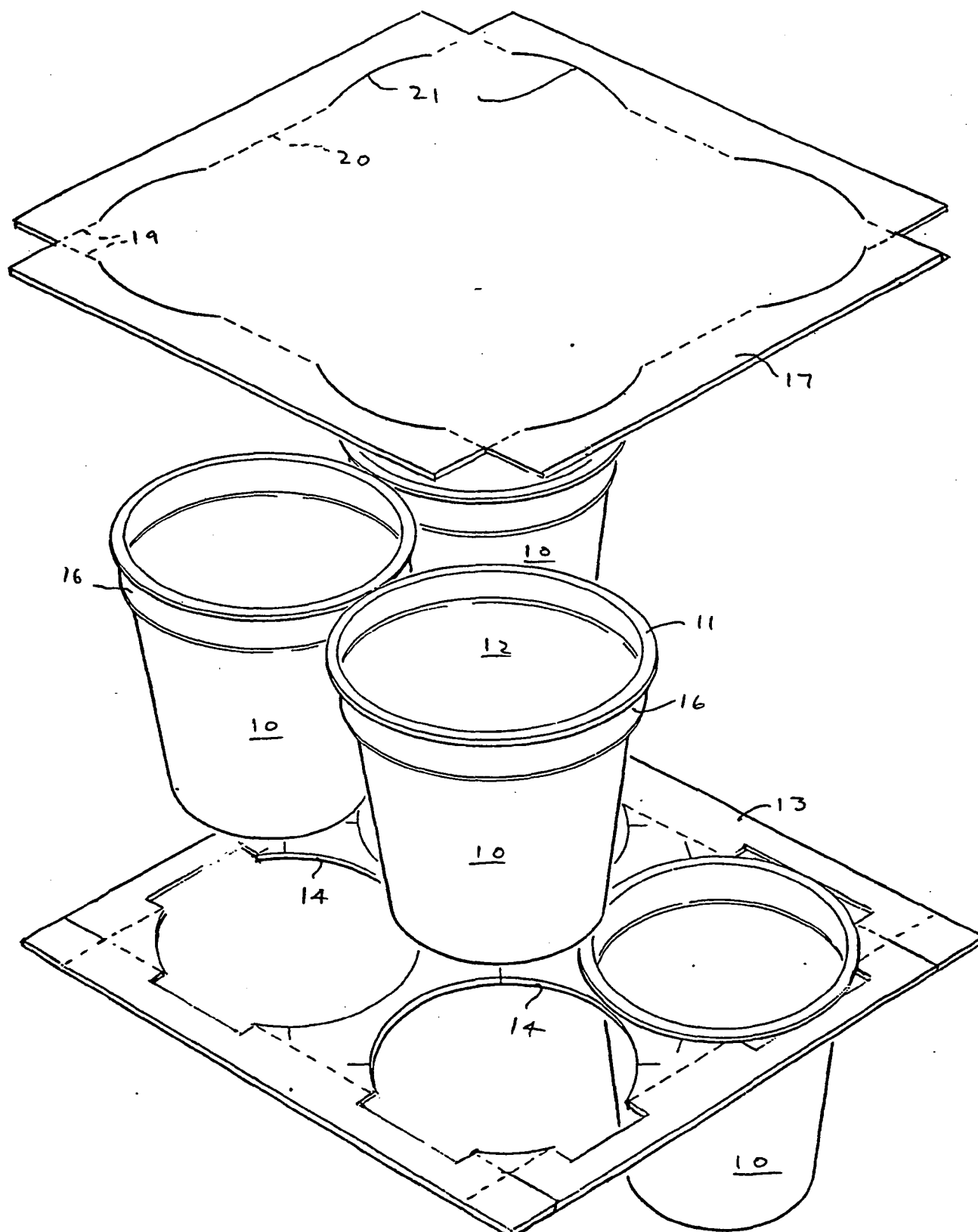
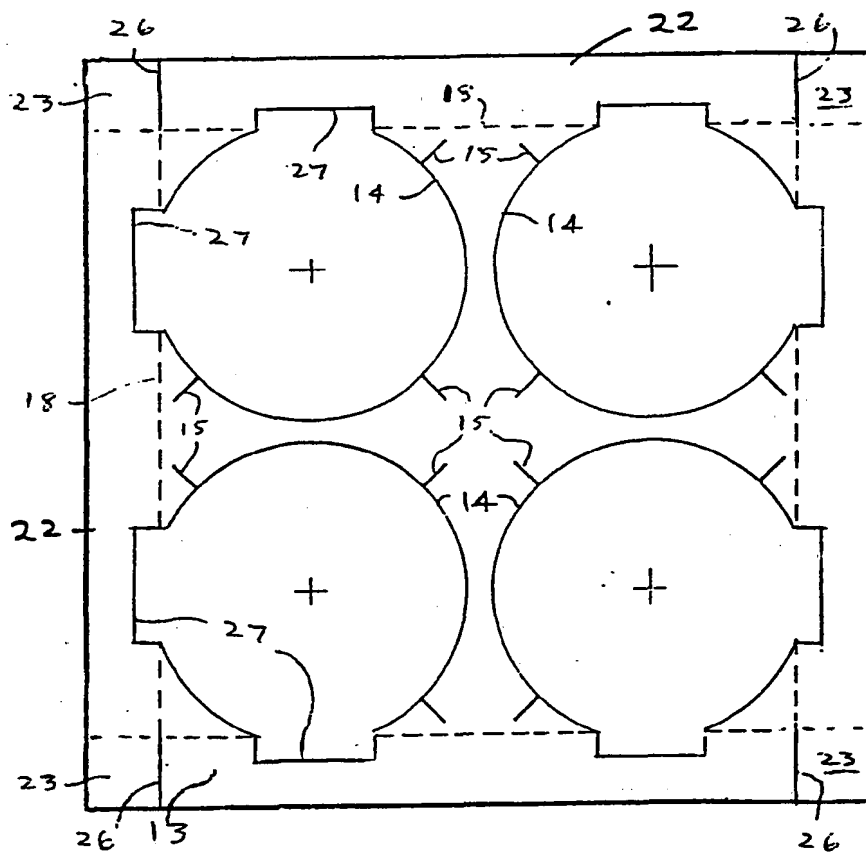
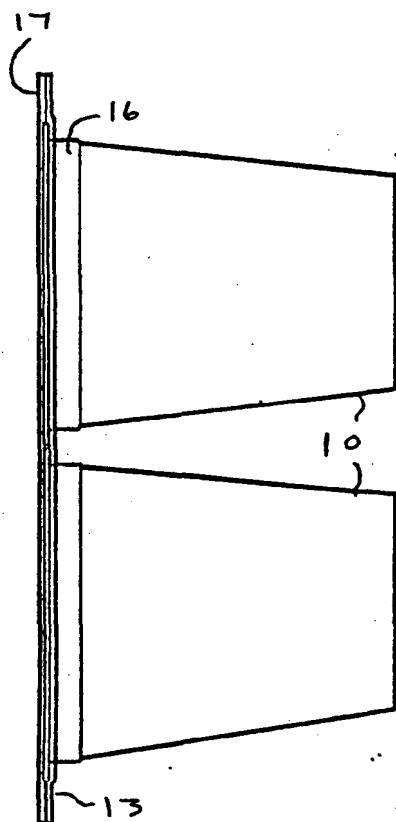
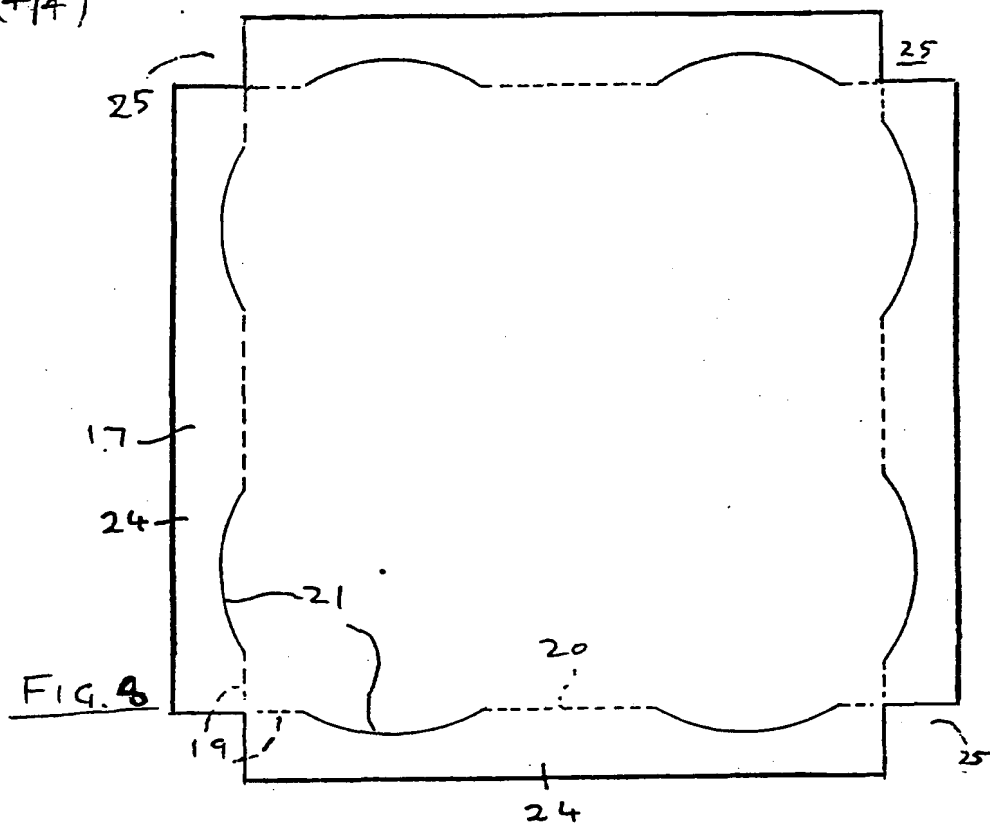


FIG. 5

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Grouping of Containers

This invention relates to grouping of containers into a unit which includes two or more such containers. The invention is applicable particularly, but not exclusively, to grouping of plastics frusto-conical food containers ("pots") into units of four such containers, to be sold in individual units, which is at present a popular way of selling such containers of food, especially of yoghurt.

According to one aspect of the invention there is provided means for grouping two or more containers into a unit, including a first rigid or semi-rigid sheet formed with a separate aperture therethrough for each container, the upper openable end of the container to be located and held in and by said aperture, and a second sheet to be laid over the first sheet and over the openable ends of the containers in the unit, the second sheet to be then affixed to the first sheet, whereby to cover and retain the openable ends of the containers.

The first sheet and/or the second sheet may be of cardboard or thin plastics; it is not necessary for the first and second sheets to be of the same material. Preferably, the first and second sheets are affixed together with adhesive.

Preferably, each of the first and second sheets is formed with lines of weakness adjacent the apertures, along which that position of the respective sheet extending from the apertures towards the adjacent edge of the sheet may be folded so as to lie against or near the container. In one embodiment, one or more slits extend from each intersection of each pair of said lines of weakness to the adjacent edges, to form foldable or removed corners.

According to another aspect of the invention, there is provided a method of grouping two or more containers into a unit which comprises the steps of providing a first rigid or semi-rigid sheet formed with a separate aperture therethrough for each container, inserting a container through the relevant aperture until the upper openable end of the container is located and held in and by said aperture, laying a second sheet over the first sheet and over the openable ends of the containers in the unit, and affixing the second sheet to the first sheet.

Conveniently, the method according to the invention includes the steps of taking the number of containers for the unit, each container being of a form which tapers smoothly outwardly from a base thereof to the openable end which has an external flange, filling the containers, inserting each container base-first through the aperture until the flange reaches the first sheet and affixing the second sheet over the flanges and the first sheet.

Preferably the method includes sealing a foil cover over the openable end of each container before the base is inserted through the aperture.

According to a further aspect of the invention there is provided a group of containers comprising four frusto-conical food containers each filled with a food product and each having a foil cover sealed to an external flange at

the openable end of the container, the containers inserted through four apertures in a first sheet of cardboard or thin plastics or the like, with the flanges adjacent said first sheet, and a second sheet of cardboard, plastics or the like affixed over the covers of the containers in the unit and over and to the first sheet.

Embodiments of the invention are described, by way of examples only, with reference to the accompanying drawings, in which:

Figure 1 is an exploded perspective of a group of containers, according to one embodiment of the invention;

Figure 2 is a side elevation of the group of containers shown in Figure 1;

Figure 3 is a plan view of a first sheet of material used in the group of containers;

Figure 4 is a plan view of a second sheet of material used in the group of containers;

Figure 5 is an exploded perspective of a group of containers, according to another embodiment of the invention;

Figure 6 is a side elevation of the group of containers shown in Figure 5;

Figure 7 is a plan view of a first sheet of material used in the group of containers shown in Figure 5; and

Figure 8 is a plan view of a second sheet of material used in the group of containers shown in Figure 5.

Referring to Figures 1 to 4 of the drawings, four frusto-conical moulded plastics yoghurt containers 10 are grouped into a single unit, so that the yoghurt can be sold in individual units. Each container 10 has an external flange 11 at the upper open end 12. In use, the containers 10 are filled with yoghurt and the open ends 12 are closed by circular foil covers sealed to the flanges 11.

The four filled and sealed containers 10 are held into the unit by a cardboard sheet 13, seen particularly in Figure 3. The sheet 13 has four circular apertures 14 into each of which the external surface of the containers 10, immediately below the flange 11, is a close fit. A light grip of the container 10, by the sheet 13, is provided by short slits 15 radiating from each aperture 14, the aperture 14 being very slightly smaller than the container 10, just below the flange 11. Where the container 10 has a short enlarged section 16 below the flange 11, either of enlarged frusto-conical or cylindrical form, the aperture 14 is a light gripping fit on the section 16.

After assembling the filled and closed containers 10 into the apertures 14, a second cardboard sheet 17, as seen in Figure 4, is placed over the first sheet 13 and over the foil covers and is affixed by adhesive to the first sheet 13, thereby retaining the containers 10 into a single unit of four and at the same time protecting the foil covers.

The assembly of the unit, the adhesion of the sheets 13 and 17 together and the removal of individual containers 10 from the unit are facilitated by lines of scoring 18,19,20 part way through the sheets 13,17 and by arcuate slits 21 through the sheet 17. Score lines 18 leave a marginal edge portion 22 having chamfered ends 23 on sheet 13; score lines 19,20 leave a marginal edge portion 24 having chamfered ends 25 on sheet 17. In use, once the unit has been assembled, marginal edge portions 22 and 24 are folded down so that edge portions 22 are closely adjacent to the outer faces of containers 10. This arrangement permits minimal wastage of shelf space, as the unit of four containers takes up substantially the same shelf space as four individual frusto-conical containers. In a modification of the invention, the arcuate slits 21 may, instead of being part circular, be

concave curves shaped to assist in the gripping of the respective containers when the marginal edge portions 22 and 24 are folded down.

The containers 10 can be formed into units of more or less than four by providing an appropriate number of the apertures 14. Where the containers 10 are of non-circular cross-section, for example, when they have tapered flat sides and rounded corners, each aperture 14 is made of a corresponding shape and size.

Figures 5 to 8 of the drawings show a modified assembly, like parts being given the same reference numerals. Score lines 18 and short slits 26 in sheet 13 leave the marginal edge portions 22 having foldable corners 23. Cut-outs 27, which may be straight edged or of other suitable shape, extend from the apertures 14 into the marginal edge portions 22. Score lines 19,20 in sheet 17 leave the marginal edge portions 24 having removed corners 25. Once the unit has been assembled, marginal edge portions 22 and 24 are folded down so that edge portions 22 are closely adjacent the outer faces of containers 10 and the corners 23 are folded onto the adjacent marginal edge portion 22 and may be adhered thereto.

The invention is applicable to many forms of container 10, suitable for holding a wide range of products.

CLAIMS:

1. Means for grouping two or more containers into a unit, including a first rigid or semi-rigid sheet formed with a separate aperture therethrough for each container, the upper openable end of the container to be located and held in and by said aperture, and a second sheet to be laid over the first sheet and over the openable ends of the containers in the unit, the second sheet to be then affixed to the first sheet, whereby to cover and retain the openable ends of the containers.
2. Grouping means according to claim 1, in which the first sheet and/or the second sheet are of cardboard or thin plastics.
3. Grouping means according to claim 2, in which the first and second sheets are of different materials.
4. Grouping means according to any preceding claim, in which the first and second sheets are affixed together with adhesive.
5. Grouping means according to any preceding claim, in which each of said apertures is slightly smaller than that part of the upper openable end of the container which is to be located and held thereby, whereby the edges of said aperture are distorted by the container when inserted, so as to grip the container.
6. Grouping means according to claim 5, in which the first sheet has one or more short slits radiating out from the edges of the aperture, to facilitate said distortion thereof.

7. Grouping means according to any preceding claim, in which the or each of said first and said second sheet is formed with lines of weakness adjacent said apertures, along which that portion of the respective sheet extending from the apertures towards the adjacent edge of the sheet may be folded so as to lie against or near the container.
8. Grouping means according to claim 7, in which the lines of weakness are formed by scoring part way through the respective sheet.
9. Grouping means according to claim 7 or 8, in which the corners of the sheets are chamfered through or near the points of intersection of adjacent lines of weakness.
10. Grouping means according to any of claims 7 to 9, in which the lines of weakness of the second sheet include arcuate slit portions extending outwardly from straight lengths of the line of weakness, the arcuate portions being positioned to overlies parts of the peripheral edge of the openable ends of the containers.
11. Means for grouping two or more containers into a unit, constructed and arranged and adapted to operate substantially as described herein and as shown in the accompanying drawings.
12. A method of grouping two or more containers into a unit which comprises the steps of providing a first rigid or semi-rigid sheet formed with a separate aperture therethrough for each container, inserting a container through the relevant aperture until the upper openable end of the container is located and held in and by said aperture, laying a second sheet over the first sheet and over the openable ends of the containers in the unit, and affixing the second sheet to the first sheet.

13. A method according to claim 12, including the steps of taking the number of containers for the unit, each container being of a form which tapers smoothly outwardly from a base thereof to the openable end which has an external flange, filling the containers, inserting each container base-first through the aperture until the flange reaches the first sheet and affixing the second sheet over the flanges and over the first sheet.
14. A method according to claim 12 or 13, including sealing a foil cover over the openable end of each container before the base is inserted through the aperture.
15. A method according to any of claims 12 to 14, including folding one or more peripheral edges of the sheets through approximately a right angle, so as to lie against or adjacent the containers, after assembly of the unit.
16. A group of containers comprising four frusto-conical food containers each filled with a food product and each having a foil cover sealed to an external flange at the openable end of the container, the containers being inserted through four apertures in a first sheet of cardboard or thin plastics or the like, with the flanges adjacent said first sheet, and a second sheet of cardboard, plastics or the like affixed over the covers of the containers in the unit and over and to the first sheet.

